USER MANUAL V5

Table of Contents

1- PRESENTATION, SAFETY RECOMMENDATIONS AND GENERAL PRECAUTIONS 2
2- DESCRIPTION DE LA MACHINE 3-4
3- INSTALLATION OF THE MACHINE 5-6
4- PRODUCT OPERATION 7
- Key definition 7
- Using pneumatic clamps C 8-9
- Use a gun 10
- Error management 10-11
- Welding spot counter 11
- Recording features 12-15
- User identification mode 15
- User programs 15-16
- GYSPOT Software 15-16

5- USE AND MAINTENANCE PRECAUTIONS 17
- User training 17
- Preparation of the work-piece 17
- Single sided gun welding 17
- Cooling liquid level and efficiency 17
- Cleaning the pneumatic filter 17
- Generator maintenance 17
- Cleaning / replacement of welding tools and other items 17
- Installation and use of the gun 17
- Replacement of C arms 17
- Specific Installation for C2 and C8 arms 18
- Adjustment of C arms 19-21

6 – SYMPTOMS / REASONS / SOLUTIONS 24
7 – DECLARATION OF CONFORMITY 25
8 – WARRANTY 25
9 – CIRCUIT DIAGRAM 26
10 – TECHNICAL SPECIFICATIONS 27
11 – ICONS 28

Autres langues disponibles sur la carte SD.
Other languages are available on the SD card.
Weitere auf SD-Karte verfügbare Sprachen.

Thank you for choosing this GYS product! Please read the instructions carefully before installing, using the product, or before maintenance in order to avoid accidents, and keep the manual in a safe place for future reference.
GYS cannot be held responsible for damage to persons or items, as a result of using the machine in the following circumstances:

- Modification or neutralisation of safety elements has been undertaken
- Safety recommendations written in this manual have not been adhered to
- Modification of the product's specifications
- Use of accessories not specified by the manufacturer
- Failure to observe regulations specific to the country or state in which the machine is used.

1. PRESENTATION, SAFETY RECOMMENDATIONS AND GENERAL PRECAUTIONS

This product has been designed to carry out the following operations in car body workshops:
- Spot welding on metal sheets with a pneumatic clamp,
- Welding of metal sheets with a single sided gun,
- Welding of nails, rivets, washers and studs,
- Repair of bumps and dents (small dents, i.e. from hail or small stones with the « quick repair" option)

GENERAL PRECAUTIONS

1. Operators must have received appropriate training.
2. Repair and maintenance operations must only be carried out by qualified personnel.
3. The operator is responsible for respecting the car manufacturer's recommendations regarding the protection of the car's electrical and electronic equipment (on-board computer, car radio, alarm, air bags, etc…).
4. Ensure compressed air supply is disconnected and depressurised before any repair or maintenance operation is carried out.
5. The electrodes, arms, and other secondary conductors can reach a very high temperature and remain hot for a long time after the machine has stopped. Pay particular attention to the risks of serious burns.
6. It is necessary to make a regular preventive maintenance on the machine.

MAINS SUPPLY

1. The unit must be connected to an earthed power supply - ensure that the earth connection is in good condition.
2. Ensure the workbench is connected to the earth.
3. Dry, protective clothing and accessories must be worn before working with the metal.
Make sure that the operator has no contact with the metal parts to be welded without any protection or with wet clothes.
4. Avoid contact with the welding pool.
5. Do not undertake welding, or place the machine, in wet areas or on wet flooring.
6. Ensure all welding cables are in excellent condition before undertaking any work. Ensure that any defects in isolation, cables, or connectors are addressed, and that equipment is checked for any gas, or coolant liquid leaks, before commencing work.
7. Before performing any control or maintenance operation, switch off and disconnect the unit directly from the electricity supply.

EYE AND BODY PROTECTION

1. During the welding process, the operator must protect themselves from possible metal projections: leather gloves, welding aprons, safety shoes, welding helmets or glasses for filtering radiation and projections. Similarly, during grinding or hammering operations, the operator must wear eye protection.
2. The tightening force of the clamp can reach 550 daN. Keep all body parts away from the mobile elements of the clamp to avoid any risk of injury - particularly to fingers and other small extremities.
3. Do not wear rings, watches, or jewellery, as metal current conductors can cause serious burns.
4. All protection boards must be in good condition and kept in place.
5. Never look at a welding arc without eye protection.
6. Protect the environment surrounding the work area from projections and reflections.

FIRE

1. Do not undertake welding near flammable material as sparks may cause fire.
2. Ensure that there is a fire extinguisher in close proximity to the operator
3. Ensure the machine is used in an area with adequate ventilation.
4. Do not weld on, or near, combustible or lubricant containers or those used to contain flammable material, even if empty.
5. Do not weld in an atmosphere charged with flammable gas or fuel fumes.

ELECTRO-MAGNETIC COMPATIBILITY

When using the welding equipment, ensure that:
- There are no other power supply cables, control lines, or any sensitive electronic devices (mobile phones, radios, computers, medical equipment etc…) in the vicinity of the machine.
- People using electronic medical devices (such as pacemakers, or hearing aids) should consult their doctor before using this device. Take extra protections if other products are to be used in the vicinity of the machine.
- The battery is disconnected from the vehicle.

We recommend you to take the machine away at the maximum from all the devices of the vehicle (calculators, relay, embedded computer…)

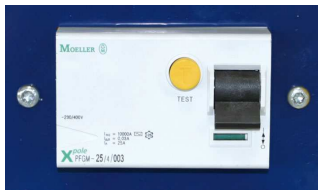
2. DESCRIPTION DE LA MACHINE

Front panel

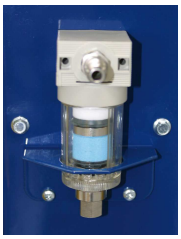
SD card reader

Display board

Rear panel



32A D-Kurve Einschalter / Rückstromschalter



Pneumatische Filtereinheit, Verbindung zum pneumatischen System

C clamp

Button B: Open / Close The clamp

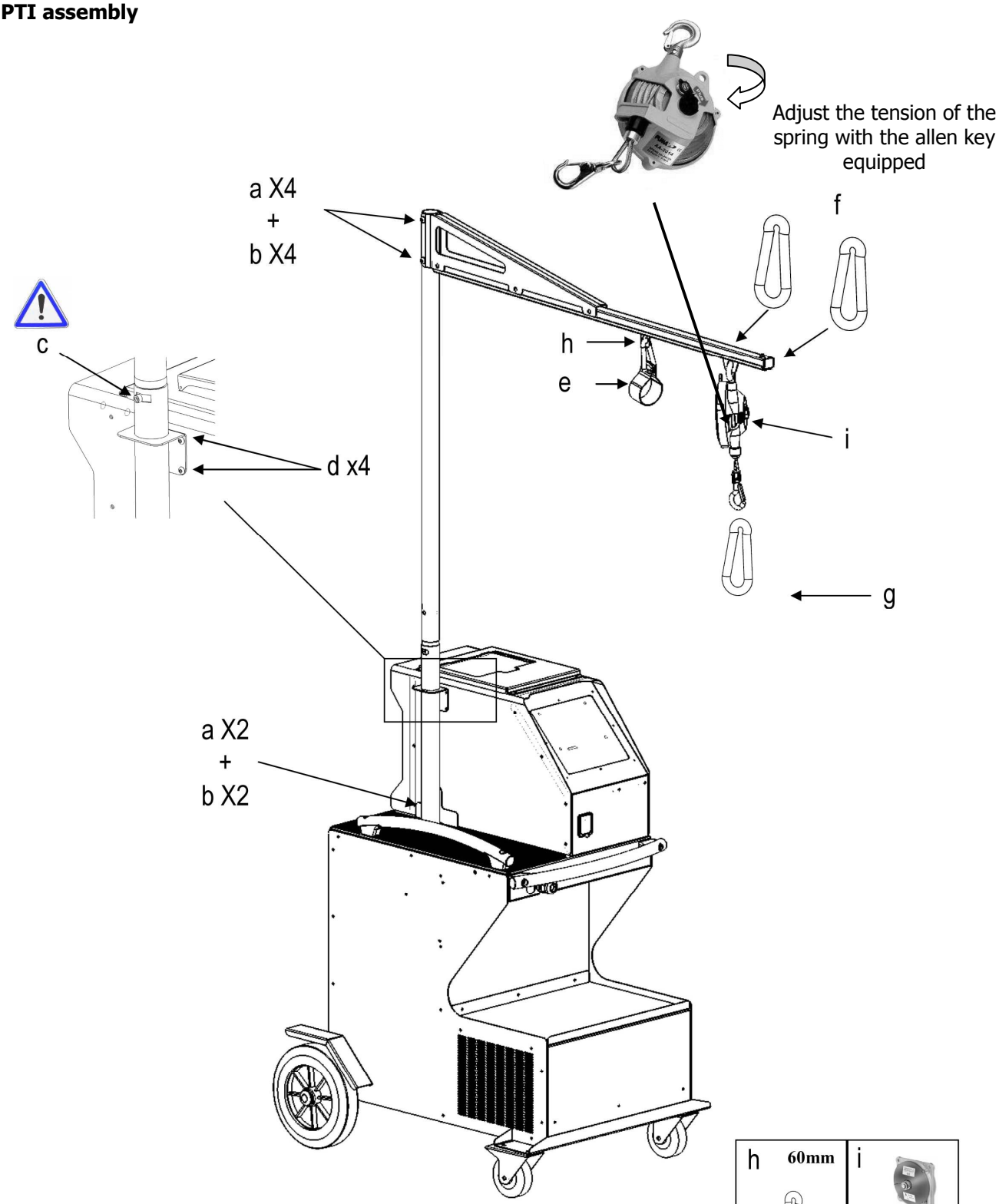
C-Arm

Button A: Remote control Of the Metal thickness

Locking / Unlocking Clever

Removable electrode

Stand PTI assembly



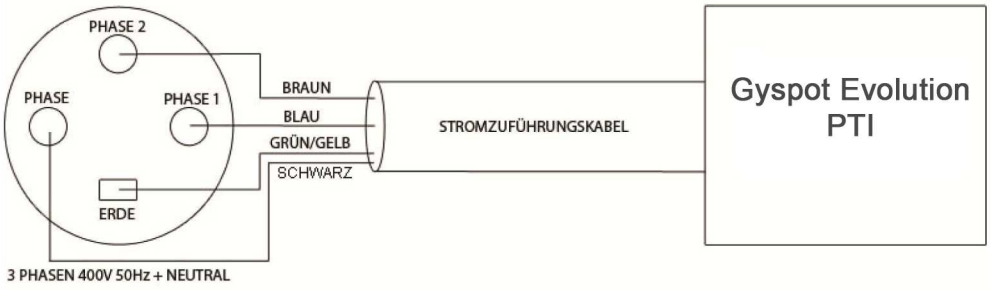
a X 6	b X 6	c X 1	d X 4	e X 1	f 80mm X 2	g 70mm X 1

h 60mm	i X 1

3. INSTALLATION OF THE MACHINE

Before use

Several checks are necessary before using the unit to ensure good performance of the machine:
- Check the electrical line voltage: it should be **400V**, 3 phases, with a **32A delayed circuit breaker, curve D (or aM type fuse).**
- Check the cross section of the cable going from the main electrical board to the socket where the machine will be plugged in to: it should be **4x6 mm2**. If the cable is longer than 10m, use a 10mm² conductor. If you are using an electrical extension cord, use a 6mm² conductor (use 10mm² if the total length of the electrical line + extension cord is greater than 10m).
- Connect a **3 phase plug with earth** (minimum 32A) to the power cable.



- Caution: in order to avoid voltage drops which can generate bad welding spots, do not overload the electricity supply, do not use cables with insufficient diameter/cross seciton. Do not use a mains socket that is located too far from the circuit breaker.
- If the machine is not sufficiently powered, it will not be possible to ensure a good quality weld.
- Check that the **compressed air** network can deliver a **minimum of 7 bars** (dry air), then connect the compressed air network to the back of the machine.

The machine must not be used on a compressed air network with a pressure lower to 3 bars.

Assembling the clamp handle and the air connector

Assemble the clamp handle on the left side of the clamp

Air connector
Attach the air connector to the air filter.

Filling the cooling tank

GYS recommends that you use **CORAGARD CS330** (or equivalent) cooling liquid in this cooling tank, for more information, visit the website: http://www.aqua-concept-gmbh.eu

The use of other cooling liquids, and in particular standard cooling liquids, can lead to the accumulation of solid substances inside the cooling system (due to electrolysis), this will negatively impact the cooling efficiency, and possibly cause total obstruction of the system. Any degradation to the machine caused by the use of cooling liquids different from the CS330 (or equivalent) will not be considered under warranty.

The CORAGARD CS330, used undiluted, provides anti-freeze protection down to -20°C. If it is necessary to dilute the coolant only use **distilled water**; TAP WATER is NOT RECOMMENDED to dilute CS330!
NB: a minimum of 10 litres should be used in the tank to provide minimum protection for the cooling system.

30 litres of pure CS330	anti-freeze protection down to -20°C
20 litres of CS330 + 10 litres of distilled water	anti-freeze protection down to -13°C
10 litres of CS330 + 20 litres of distilled water	anti-freeze protection down to -5°C

Any damage to the machine due to the freezing of cooling liquid will not be accepted under warranty.

To fill the tank with cooling liquid, proceed as follows:
- Put the pneumatic clamp on its stand
- **Fill the tank with 30 litres of cooling liquid** - this should reach the middle of the min / max indicator on the side of the machine.

Safety recommendations regarding CS330 cooling liquid:

- In case of contact with the eyes, rinse thoroughly with plenty of water immediately after contact (remove contact lenses first if worn). Seek medical help if necessary.
- In case of contact with the skin, wash thoroughly with soap and plenty of water. Remove any contaminated clothing, and if skin irritation occurs (redness etc…) consult doctor.
- In case of ingestion, rinse the mouth out thoroughly, and drink plenty of water - consult your doctor immediately.

Maintenance:

It is recommended that the cooling liquid is changed every 2 years. To empty the coolant tank, proceed as follows:
NB: Ensure there is a container available near-by to collect the cooling liquid as it drains.

- Make sure an arm is fitted on the C-clamp
- Select the C-clamp adjustment mode in the machine menu.
- Unscrew the mobile electrode from the clamp.
- Select the normal mode in the menus.
- Press the welding button on the clamp to activate the pump.
- Use the container to collect the liquid as it drains from the clamp.
- In the absence of welding, the pump will stop automatically after 2 minutes. It will therefore be necessary to press this button several times to completely empty the tank.
- When the tank is empty, go back to the C-clamp adjustment mode in the menus and re-connect the mobile electrode to the clamp.

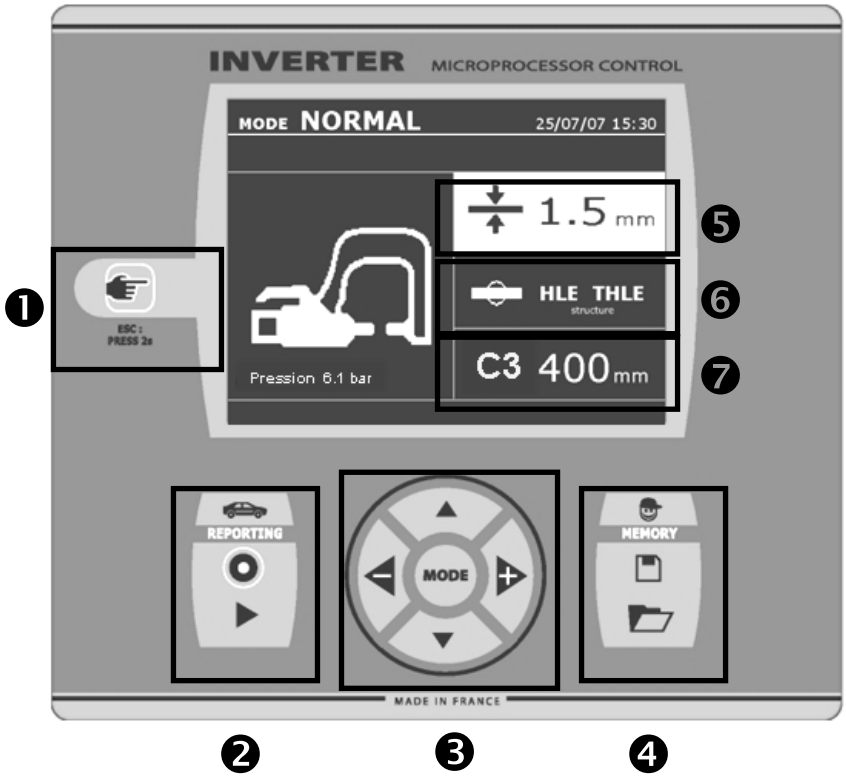
Fill the tank with the new cooling liquid.

Starting the machine

Switch ON the circuit breaker. The electronic card starts a test and initialisation cycle of the parameters for approximately 10 seconds. At the end of this cycle, the machine is ready to use.
When the machine starts up, liquid will circulate in the cables. **Check that there are no leaks.**

4- PRODUCT OPERATION

Key definition



① **key**

_ This key is used to select the tool required: Clamp, single-sided gun or "clamp adjustment"
- Press for 2 seconds: to return to normal mode from any other mode.
- To re-set the spot-counter to 0 (when displayed): Press for 2 seconds.
- In visualisation mode: Press twice to erase the report that is displayed on the screen.
- In Program Saving mode: Press the button briefly to erase the selected program.

② **Save a report**

More details can be found on this function in the corresponding chapter.
The « record » key enables or disables the saving of a report.
The « View » key allows the user to read the sequence of spots performed.

③ **Using advanced modes**

The MODE button navigates through 4 different modes: STANDARD MODE, MULTISHEET MODE, MANUAL MODE, and AUTO MODE. A prolonged press on the MODE key enters the configuration mode, where the language and date can be edited and the warning sound activated for "current too low" or "low pressure" messages. The up and down keys go through the parameters to modify (sheet thickness, type of steel, arm used). The + and – keys allow modification of each parameter. sich die Werte ändern oder auswählen; die + und – Tasten erhöhen bzw. verringern den ausgewählten Wert.

④ **Saving of user welding parameters**

The « save » button allows the user to save selected welding parameters (mode, sheet thickness, welding current, welding time or electrode force)
The "open" button will restore previously saved welding settings. The machine automatically goes to manual mode, recalling the saved parameters (current, welding time, force) and the tool used (clamp or gun).

⑤ **Select sheet thickness**

The sheet thickness can be adjusted using the + and – keys. The thickness can be selected from the following preset values: 0.6, 0.8, 1.0, 1.2, 1.5, 1.8, 2.0, 2.5, 3.0 mm.

⑥ **Select type of steel**

This allows the selection of the type of metal to weld from 4 different options: coated steel, HTS steel, UHTS steel, BORON steel. This setting can be adjusted using the + and – keys.

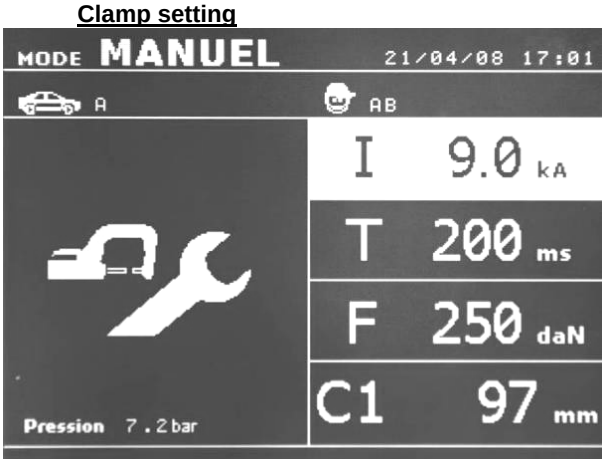
⑦ **Adjustment of the arm used**

When a clamp is used (either C or X), the user should specify the length of the arms fitted to the clamp, so that the machine will automatically adjust the air pressure to reach the required electrode force.

Using pneumatic clamps C

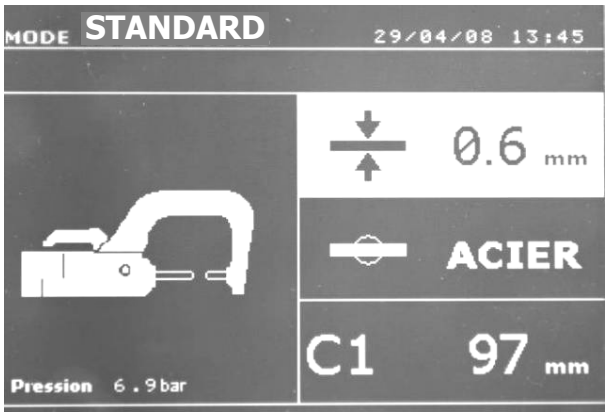
- Tighten the C-clamp using the locking lever and check that the screw between the arm and the clamp is correctly tightened.
- The clamping force is calculated by the machine, considering the force setting or the thickness of the sheets selected.

Clamp setting



The key is used to enter the clamp adjustment mode. The clamp adjustment mode allows the user to close the clamp and apply the programmed
force on the electrodes without any current flowing. This mode is used to adjust
the arms. The clamp will remain closed as long as the button remains pressed,
this allows the user to check the alignment of the electrodes and positioning of
the caps.
Press Taste wechselt zurück in den «STANDARD» Modus.

STANDARD Modus



This is the default mode when the machine starts. Quick and easy spot welding
by selection of:

- Type of tool used
- Sheet thickness:

0.6, 0.8, 1.0, 1.2, 1.5, 1.8, 2.0, 2.5, 3.0.
When you weld 2 metal sheets, put the thickness of thinnest one.
When you weld 3 metal sheets, put the total of the 3 divided by 2.

- The type of steel (coated steel, HTS steel, UHTS steel, BORON steel), and the
arm to be used.
- The up and down button go through the parameters to modify (sheet thickness, type of steel, arm used). The + and – keys allow modification of each Parameter

Button A on the clamp allows the user change the thickness of the sheets to be welded remotely.

Button B on the clamp allows the user to spot weld with the selected parameters.

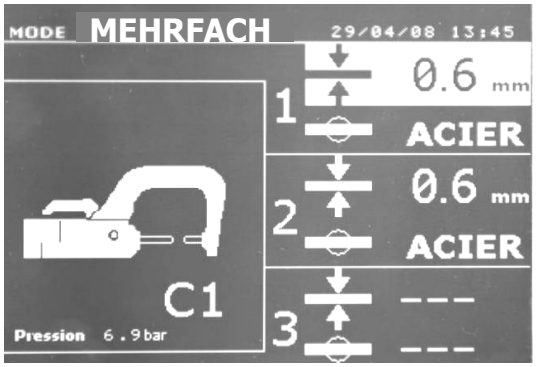
Before the weld: If the input air pressure is too low to reach the required electrode force, a warning will sound, and the machine will display the error message "Pressure too low". Pressing the button for a second time will force the execution of the welding spot with the available air pressure.

After the weld: If the welding current measured during the spot is 6% less than the setting, the machine will display the error message "Current too low" - the welding spot should be checked.

A message will be displayed at the end of every welding spot, showing the measured welding current and electrode force. This message is displayed on the screen until a key on the control panel is pressed, or until a new welding spot is performed, by pressing the B button on the clamp.

Mehrfach Modus

This mode allows the user specify the thickness and type of each sheet in an assembly of 2 or 3 sheets.



Using The up and down button (key definition diagram, (5)) allows selection of the parameters for each sheet. When the parameters for a sheet are highlighted, the sheet thickness and type of steel can be adjusted using the + and – keys (key definition diagram, (3)).
The individual sheet parameters that can be adjusted in this mode are :

- Sheet thickness : 0.6, 0.8, 1.0, 1.2, 1.5, 1.8, 2.0, 2.5, 3.0 mm.

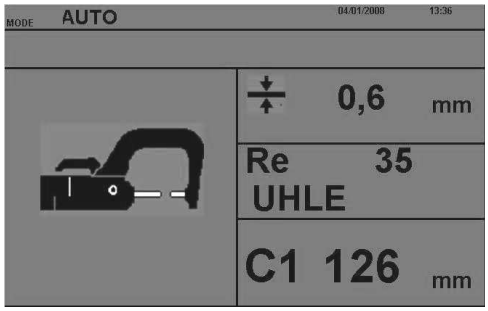
-The type of steel for each sheet : coated steel, HTS steel, UHTS steel, BORON steel.

- To activate the required sheet, press the up and down keys (button definition diagram, (3)) to highlight the required sheet ; then use the + and – keys to select the thickness and type of steel

Before the weld: If the input air pressure is too low to reach the required electrode force, a warning will sound, and the machine will display the error message "Pressure too low". Pressing the button for a second time will force the execution of the welding spot with the available air pressure.
After the weld: If the welding current measured during the spot is 6% less than the setting, the machine will display the error message "Current too low" - the welding spot should be checked.
A message will be displayed at the end of every welding spot, showing the measured welding current and electrode force. This message is displayed on the screen until a key on the control panel is pressed, or until a new welding spot is performed, by pressing the B button on the clamp.
Press for 2 seconds to revert back to standard mode.

Auto Mode

The auto mode is optional and is configurable in the setup menu that is activated by pressing the mode key for 2 seconds (auto mode on / off).



The auto mode is identical to normal mode except that the user enters the yield strength of steel. The Ys may be found using a durometer such as Gysteel Vision
Re: 1-10 corresponds to mild steels.
Re: 11-18 corresponds to HSS/THSS steels.
Re: 19-35 corresponds to UHSS steels.
Re: 36-99 corresponds to boron steel.

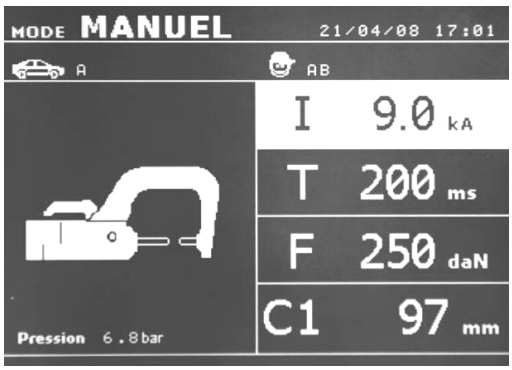
- Sheet thickness: 0.6, 0.8, 1.0, 1.2, 1.5, 1.8, 2.0, 2.5, 3.0.

- Type of arm used.

The up and down button (key definition diagram, (3)) scrolls through the parameters to modify (sheet thickness, Yield strength, arm used). The + and – keys allow modification of each parameter.
Button A on the clamp allows the thickness of the sheets to be welded to be changed remotely.
Button B on the clamp allows the user to spot weld with the selected parameters.
Press for 2 seconds to revert back to standard mode.

Manual Mode

This mode allows the user to manually select the welding parameters, for example when following instructions from a Manufacturer



The default settings in manual mode correspond to the settings automatically selected in standard mode (thickness and type of sheet, electrode force, arm).
The parameters can be adjusted using the + and – keys (Key Definition diagram, (3)). The up and down keys allow navigation from one parameter to the next

-Welding current (2000 to 13000 A, steps of 100 A) displayed in kA.
-Welding time (100 to 850 ms, steps of 10 ms)
-Electrode force (100 to 550 daN, steps of 5 daN)
-Arm used on the clamp (number and length)

Before the weld: If the input air pressure is too low to reach the required electrode force, a warning will sound, and the machine will display the error message "Pressure too low". Pressing the button for a second time will force the execution of the welding spot with the available air pressure.
After the weld: If the welding current measured during the spot is 6% less than the setting, the machine will display the error message "Current too low" - the welding spot should be checked.
A message will be displayed at the end of every welding spot, showing the measured welding current and electrode force. This message is displayed on the screen until a key on the control panel is pressed, or until a new welding spot is

performed, by pressing the B button on the clamp.

Press for 2 seconds to revert back to standard mode.

Use a gun

- Connect the copper plate onto the generator's earth cable.

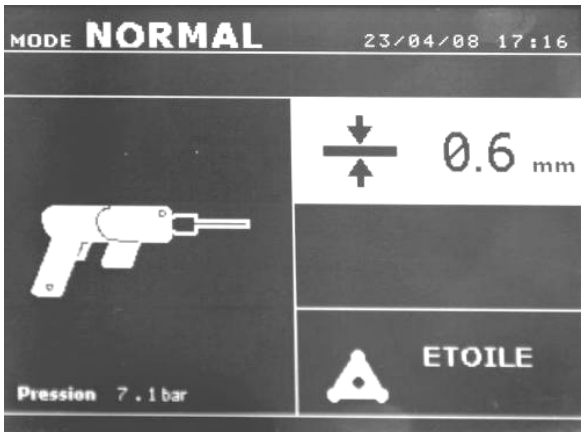
- Firmly fix the earth plate as near as possible to the welding area.

In case of spot welding with the single sided gun, always fix the earth plate to the sheet that will not come into contact with the welding electrode (so that the welding current will flow through the 2 sheets to be welded).

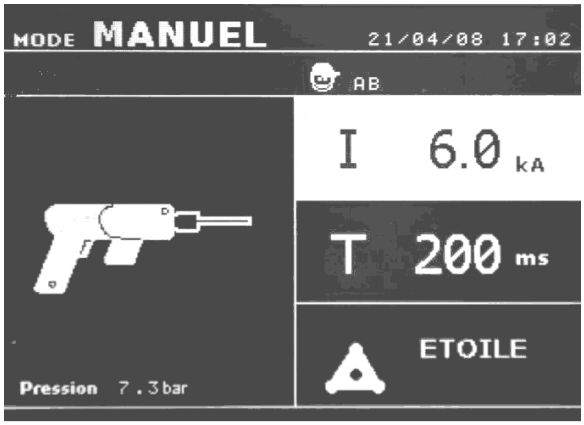
- Select the GUN tool using the key, or by pressing the gun trigger.

- The standard mode with 'star welding' is launched by default.

- The gun can be used in both standard and manual modes.



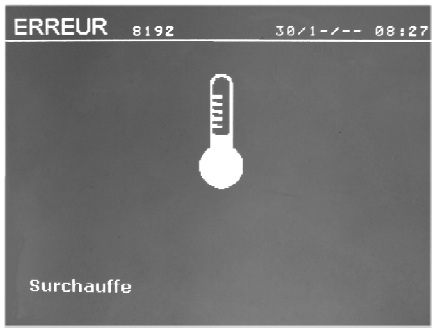
- In standard mode, the gun can weld a maximum of 1.5mm thick sheets.
When using the gun, the operator can choose between several tools (single spot, carbon shrinking, star welding, studs, rivets, washers, stitches). The tool selection is made with + and - keys.



- In manual mode, the maximum permitted welding current is 9 kA during a period that will not exceed 600 ms, it is therefore impossible to select higher values for these parameters.
Set the generator entering the metal sheet thicness to weld with the keys + and -. It is possible to midify the parameters current and time in manual mode.

Press for 2 seconds to revert back to standard mode.
When highlighted, a parameter can be adjusted using the + and – keys. The ▲ and ▼ keys allow movement from one parameter to the next.

Error Management



Different events might cause the appearance of error messages. They can be classified in three categories:

- General Warnings: i.e overheating, lack of electrode force or welding current, etc…

These messages appear on the screen, and remain until a key is pressed.

- Installation Errors (air pressure, electrical power supply).

- Major Faults: These defects cause the display of an error message that locks the machine

- The thermal protection relies on a thermostat located on the diode bridge, this feature will lock the machine, and display the message "overheating"

Current too low

If the welding current measured during the spot is 6% less than the setting, the machine will display the error message "Current too low" - the welding spot should be checked.
A message will be displayed at the end of every welding spot, showing the measured welding current. This message is displayed on the screen until a key on the control panel is pressed, or until a new welding spot is performed, by pressing the B button on the clamp.

If the machine cannot deliver the requested current, then the following message appears. The welding spot is not performed, and the message must be acknowledged to perform a welding spot.

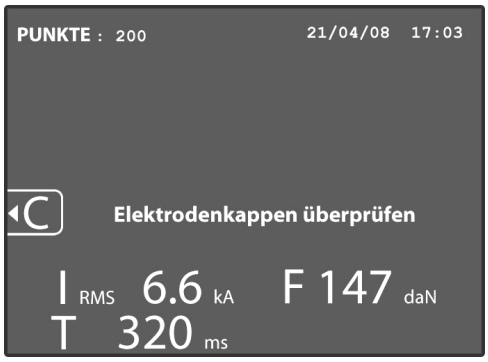
Insufficient air pressure

Before the welding spot: If the input air pressure is too low to reach the required electrode force, the machine will beep and display the following error message "Insufficient Pressure".
Pressing the button allows the user to force the execution of the welding spot, which will be performed with the air pressure available. If the actual measured clamping force is too low, then the machine will display the following message "Low Pressure".

Welding spot counter

The spot counter will count the number of spot welds performed with the same caps. If the welding spot is performed without any problem, the message below left, appears.
The counter is displayed on the top left corner of the screen. After the caps have been replaced, press the button to reset the counter to zero.
If more than 200 welding spots are done with the same caps, then the machine will display the below warning message. In this case, the warning message "Change tips" is also recorded in the traceability report..

Attention: After the warning message is displayed, if the nozzles are not changed before resetting the counter to zero, the nozzles may become badly damage and cause poor quality welding.



Recording features

The "Identification" mode is optional; you can configure it in the settings menu which is activated by pushing the mode button for 2 seconds (identification mode on/off).
If the identification mode is « off », enter a file name and activate it to store the information of the welding spots made in the memory.
The log book stores the spots made with the clamp in the memory. It is available in all modes by pressing both buttons located bellow the "reporting" icon.
The user's program is available in all modes by pushing the buttons bellow the "memory" icon.

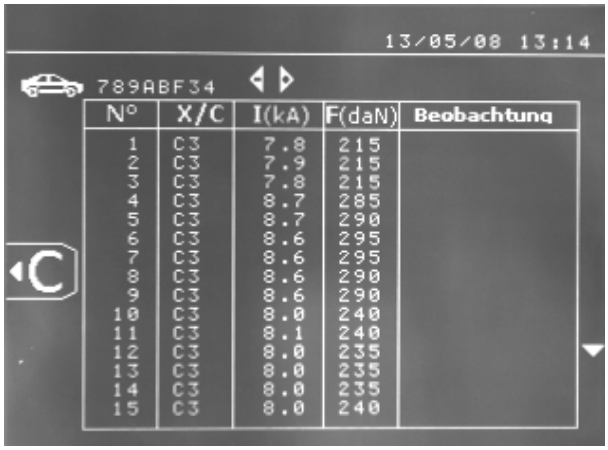
Report (log book)

Saving a report allows spot welding data to be stored on a memory card, in order to retrieve it at a later date eg. on a computer.
GYS supplies software called GYSPOT to read the SD card and the user manual.
By default, the report mode is not activated when the machine is started.
Pressing the record button (on/off) and the « mode » button starts the recording process in the selected log file. To stop saving the information, press the save button again.

The new report has: an identifier entered by the user, all the spots made, the arm and the clamp used, the settings (voltage and pressure). It puts also stores any messages received whilst recording: LOW I, LOW P, CAPS PB.
You can enter the identifier using the 4 buttons: +, -, up or down. If you enter an identifier that has already been used, the unit will save the new spot information, without erasing the old ones.

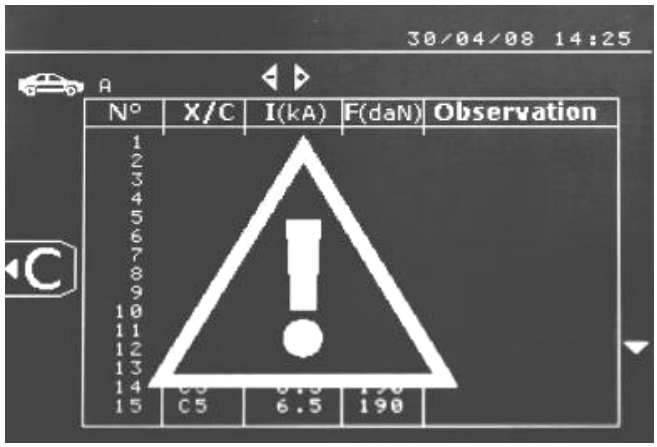
The View button allows the user to retrieve a previously saved report and view it on the screen.
To view a report, stop any current recording by pressing . Use the « mode » button to exit the report displayed.

To erase the content of a report , it has to be on screen by pressing "view" .



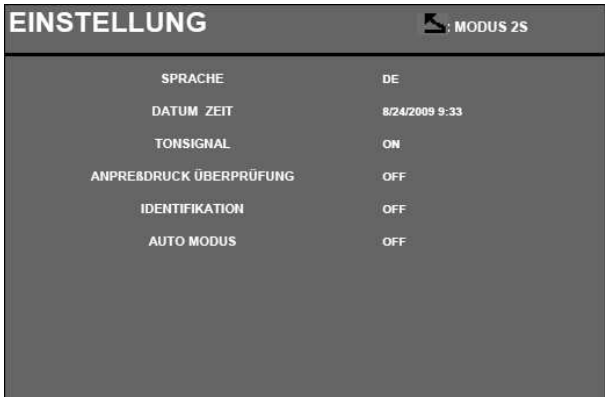
N°	X/C	I(kA)	F(daN)	Beobachtung
1	C3	7.8	215	
2	C3	7.9	215	
3	C3	7.8	215	
4	C3	8.7	285	
5	C3	8.7	290	
6	C3	8.6	295	
7	C3	8.6	295	
8	C3	8.6	290	
9	C3	8.6	290	
10	C3	8.0	240	
11	C3	8.1	240	
12	C3	8.0	235	
13	C3	8.0	235	
14	C3	8.0	235	
15	C3	8.0	240	

To erase the report shown, press and the following message will be on the screen:

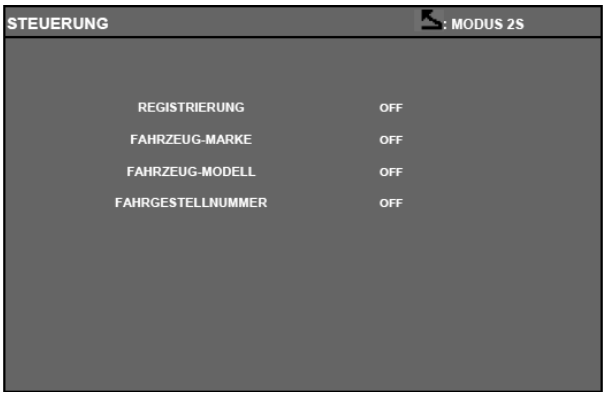


When the warning image is displayed, press again and the report content will be erased.
The warning image will disappear after 3 seconds.

User identification mode



If the identification mode setting is « ON », all the fields of the repair order must be completed or the machine will display « identification defect ».
To activate or deactivate the identification mode, an "Identification" SD card must be inserted in the BP drive instead of the "Program" SD card.
The setting screen below is activated by pressing the mode button for 2 seconds.



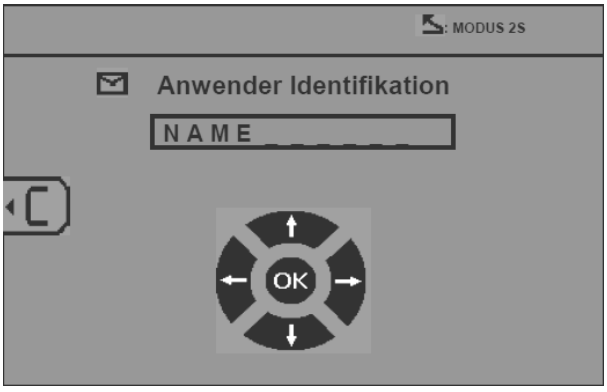
When the "Identification" SD card is inserted and the identification mode is « ON », the following screen is displayed.
This screen allows the selection of default fields « registration number, car brand, car model, chassis number »
To exit the screen, press and hold the mode button for 2 seconds. Then, re-insert the '"Program" SD card into the BP drive.

Entry of repair order (screen guide):

To modify or erase a repair order that has already been created, you will need to use the GYSPOT software on a PC (you are unable to do this on the machine). You can create maximum 100 repair orders.

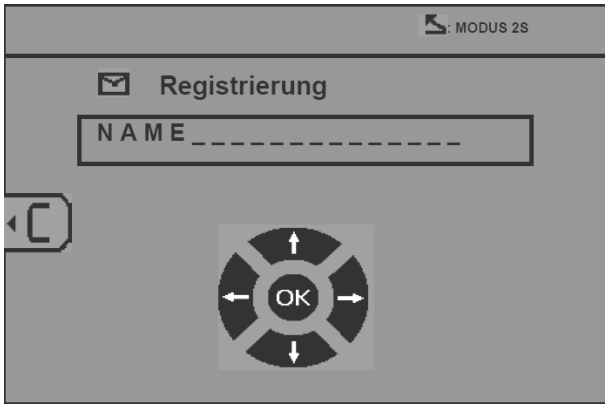
Screen: « Repair order »

Screen: "User identification"



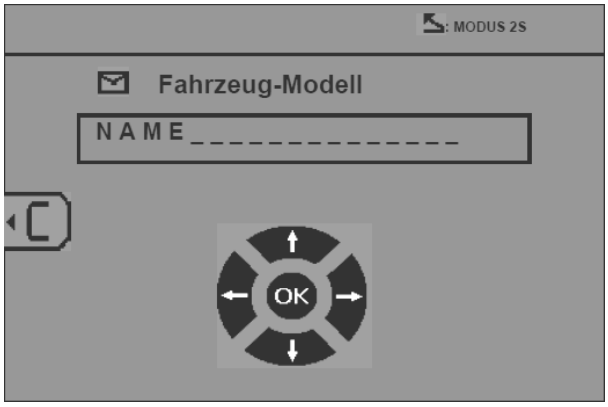
The « left » and « right » arrow keys move the cursor within the field.
The up and down arrow keys scroll through letters or figures.
Press Esc to erase the field.
The Mode button changes the field to modify playback.

Screen: « Registration number » (optional)

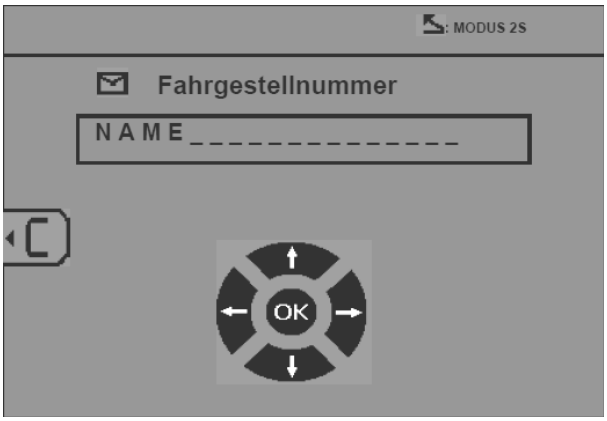


Screen: « Car brand » (optional)

Screen: « Car model » (optional)

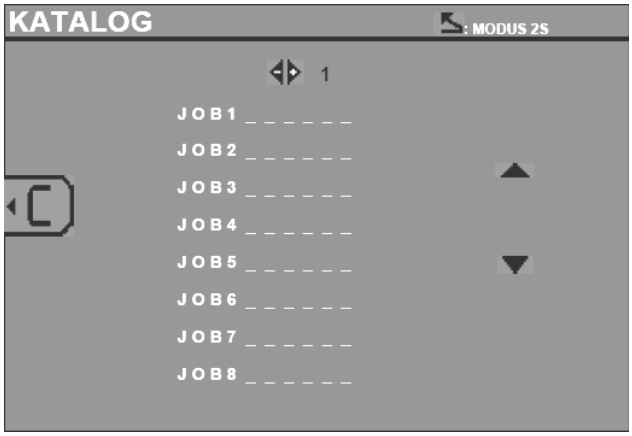


Screen: Chassis number (optional)

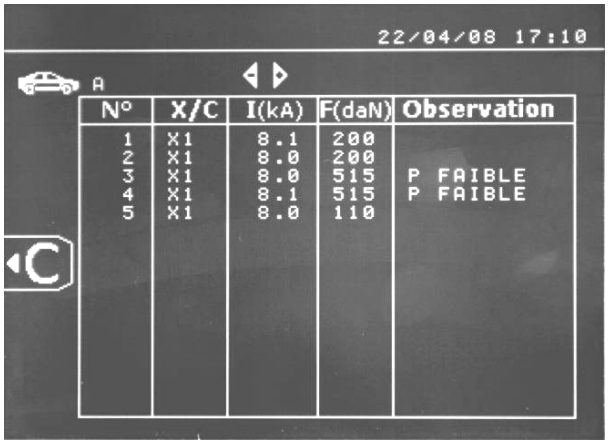


Catalogue

The View button ▶, allows you to view all repair orders on the screen - "CATALOGUE":
The number of pages is displayed (max 13) at the top
The left and right arrow keys scroll through the pages. The up and down arrow keys scroll through the list of Repair Orders.
Press the Mode button to display the repair order selected.



(1)



(2)

Use the « mode » button to exit the report view.

- The SD card driver allows the management of SD cards > 2 Gb.
- Each repair order is linked an archive file xxx.dat.(with xxx=identifier from 001 to 100). In each archive, you can save up to maximum 500 welding points. The repair order names and users are displayed.
- The page number is indicated top left.
- All the repair orders are saved in the file catalog.GYS.
- This file contains the total number of repair orders, the name of each repair order and the name of each user. There are a maximum of 100 repair orders.

User programs

The 'save' option allows a user program to be entered to save information for future use. 20 memory slots are available; each one contains the following parameters: tool, arm, welding intensity, welding time and pressure.
A program can be linked to a clamp and gun.

The button will save the settings in the manual mode (intensity, time and pressure). The 20 memory slots are indicated by their identifier (when in use) or by the symbol « --- ».
To enter an identifier, use the 4 buttons +,-, up and down arrow keys. When entering an existing user, the machine will erase the previous parameters.

The « recall » button allows access to previously saved settings.
Pressing will erase the selected program from the saved program list.
The « mode » button exits the program selection mode, the machine will then enter manual mode with the parameters and the tool saved in the program.
To deactivate a program simply change the parameter value in one of the 3 modes manual, normal or multi metal sheet, or change the tool (clamp or gun) by using the .

The view button will retrieve a previously saved report and display it on the screen.

SD memory card (ref 050914)

This card is a link between the GYSPOT BP and a PC to enable the user to:

- Retrieve and print reports for a record of work, and documentation for insurance companies if required.
- Upgrade welding parameters or add new languages.
- Edit the parameters is in the SD memory card.
- Access the user manual stored on the SD memory card.

The memory space can store information on more than 65 000 spots.
The unit can only work without memory card in manual mode.
In other modes, if the memory card is not inserted in the card drive, the following message will appear: The machine must be shut-down and restarted after inserting an SD card".
Important: The machine must be switched off before an SD card is inserted or removed from the reader - failure to do so may result in the loss of data from the card.

GYSPOT Software

The software allows the user to edit and save the weld reports made by a GYSPOT equipped with a SD drive.

Language selection

The software contains several languages: French, English, German, Spanish, Dutch, Danish, Finnish, Italian, Swedish, Russian and Turkish.
To choose a language, in the menu, select **Options**, and then click **Languages**.
Attention: once a language is selected, shut down and re-start the GYSPOT software in order to apply the change.

User identification

In order to personalise the reports with your company information, the required fields will need to be completed. In the menu, click on **Options** and select **Identity**. A new screen is displayed with the following information:
Company name
Address / Post code / City
Phone / Fax / Email / Website
Logo
This information will be displayed on your print-outs.

Import the spot reports made from an SD card

To import the spot reports made with your GYSPOT to your PC , insert the SD card into the PC card drive, or use a card reader, and start up the GYSPOT software.

Select the drive and click on the **Import** icon
When the import is complete, the spot reports will be grouped by the identifier of the repair order. The identifier matches up with the report name established on the welding machine, and is displayed in the tab «In progress».
Once the reports have been imported, it is possible to search, edit or archive them. To view the spots made in a report, select a report and the spots will be displayed in the table.

To search for a report, fill the field and click on the icon

To edit a report, select it and click on the icon

To archive a report, select it and click on the icon
Attention! The imported reports cannot be canceled until they are archived.

Consult archived spot reports

To consult the report archives, click on the tab "**Archives"**. The files are grouped by year and month. To view the spot information, select a report and they will appear in the table.
For archived reports, it is possible to search, edit or to erase a report.
Attention! When a report is archived or erased, the SD card must then be formatted to prevent the report from being imported again.

To search for a report, fill the field and click on the icon

To edit a report, select it and click on the icon

To erase a report, select a report and click on the icon .

Format an SD card

All the reports made and saved on the SD card will be erased when formatted.
To format an SD card, insert the card into your PC card drive or a card reader and, in the menu, click on **Options** and

Purge the SD card.

Attention, Any reports stored on the SD card that have not already been imported, will be imported automatically before formatting.

To enter the report information

Each report can include the following information:
User
Car model
Repair order
Registration number
Put into circulation
Intervention
Comments
To enter this data, select a report and enter the information in the report header.

Print a report

To print a report, select the one required and click . A print preview is displayed. Click .

To export the report as a PDF

To export the report as a PDF, select a file, and click on . A preview of the print is displayed. Click .

Below shows an example of the parameters saved and printed by using the GYSPOT software.

GYS

Raison sociale :	S.A.S. GYS	**Téléphone :**	0243012360
Adresse :	134 BOULEVARD DES LOGES	**Télécopie :**	0243683521
	...	**Email :**	contact@gys.fr
Code postal :	53941	**Site Web :**	www.gys-soudure.com
Ville :	SAINT BERTHEVIN		

Intervenant :	DUPOND JEAN-PIERRE	**Véhicule :**	MEGANE CC 1.6L 16V
Ordre de réparation :	455B	**Immatriculation :**	1600SW53
Date du journal :	13/05/2008	**Mise en circulation :**	21/01/2005
Commentaires :	RAS	**Intervention :**	REDRESSAGE AILE ARRIERE GAUCHE

GYSPOT INVERTER BP. LC (0000001000)

Point n°	Date / Heure	Mode	Outil	Consignes			Mesures		Etat
				Temps (ms)	Intensité (kA)	Serrage (daN)	Intensité (kA)	Serrage (daN)	
1	05/05/2008 11:11:21	Normal	Pince X n°1	310	6,6	195	6,5	195	Point OK
2	05/05/2008 11:11:25	Normal	Pince X n°1	310	6,6	195	6,5	195	Point OK
3	05/05/2008 11:11:29	Normal	Pince X n°1	310	6,6	195	6,5	195	Point OK
4	05/05/2008 11:11:33	Normal	Pince X n°1	310	6,6	195	6,5	195	Point OK
5	05/05/2008 11:11:48	Manuel	Pince X n°1	310	6,6	550	6,5	480	Pression faible
6	05/05/2008 11:11:54	Manuel	Pince X n°1	310	6,6	550	6,5	480	Pression faible

GYSPOT INVERTER (0123456789)

Point n°	Date / Heure	Mode	Outil	Consignes			Mesures		Etat
				Temps (ms)	Intensité (kA)	Serrage (daN)	Intensité (kA)	Serrage (daN)	
7	06/05/2008 11:18:36	Normal	Pince C n°1	310	6,6	195	6,4	190	Point OK
8	06/05/2008 11:18:48	Normal	Pince C n°1	310	6,6	195	6,6	190	Point OK
9	06/05/2008 11:18:53	Normal	Pince C n°1	310	6,6	195	6,5	190	Point OK
10	06/05/2008 11:19:00	Normal	Pince C n°1	310	6,6	195	6,5	190	Point OK
11	06/05/2008 11:19:04	Normal	Pince C n°1	310	6,6	195	6,6	190	Point OK

5. USE AND MAINTENANCE PRECAUTIONS

User training

Any operator of this machine should receive training adapted to its use in order to gain maximum performance from the unit (e.g.: car body repair training).

Adjust the balancer's spring tension

Adjust the balancer's spring tension with the Allen key equipped. Do not leave the clamp hanging for a long time on the balancer, as it would induce early wear out of this part. Do not let the clamp fall down repeatedly without holding it, as it could damage the balancer.

Preparation of the work-piece:

Grind and clean the work-piece thoroughly before welding.

If protection is being used, ensure that the parts are conducting by testing a sample.

Single sided gun welding

Before repairing a car, check that the car manufacturer authorizes that welding process.

Cooling liquid level and efficiency

The cooling liquid level is important to ensure the unit functions correctly. The liquid level should always be between the minimum and maximum levels indicated on the tank. Check the level and efficiency of the cooling liquid regularly, replace if needed. It is recommended replacing the cooling liquid every 2 years.

Cleaning the pneumatic filter

Ensure the dehumidifier filter located at the back of the machine is cleaned regularly.

Generator maintenance

The maintenance and repair of the generator should only be carried out by a GYS technician. Any repair/maintenance made to the generator by unauthorized personnel will invalidate the machine's warranty - GYS will not take responsibility for any incident or accident under these circumstances.

Cleaning / replacement of welding tools and other items

All welding tools are consumable and will deteriorate during use.

To extend the lifespan and efficiency of the tools, ensure that they are inspected and cleaned regularly.

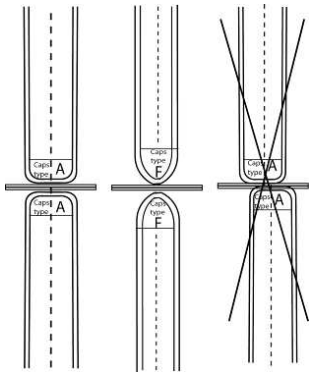
When using with the Pneumatic Clamp, check that the condition of the electrodes/CAPS (flats, rounded or beveled) is good. If the condition is poor, clean with fine grain sandpaper, or replace (see reference on the machine).

When using with the gun, check the condition of the tools: star, single-point electrode, carbon electrode. Clean, or replace if necessary.

Ensure the pneumatic filter is clean to prevent the machine overheating.

Replacement of the caps/electrodes:

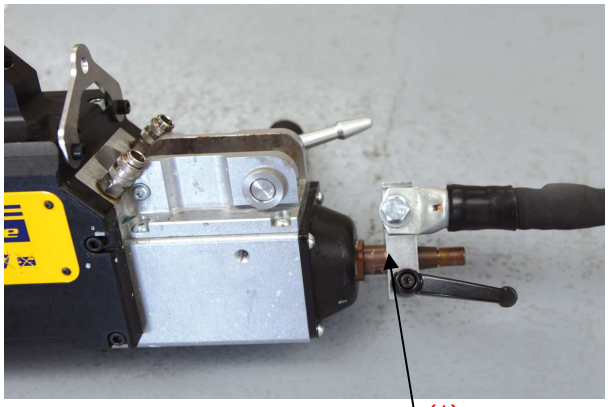
- To ensure an efficient welding point, you need to replace the caps every 200 spots - remove the caps using the spanner.
- DO NOT grind the caps
- Use grease (ref: 050440) when replacing caps
- Caps type A (ref: 049987)
- Caps type F (ref: 049970)
- Caps beveled (ref: 049994)



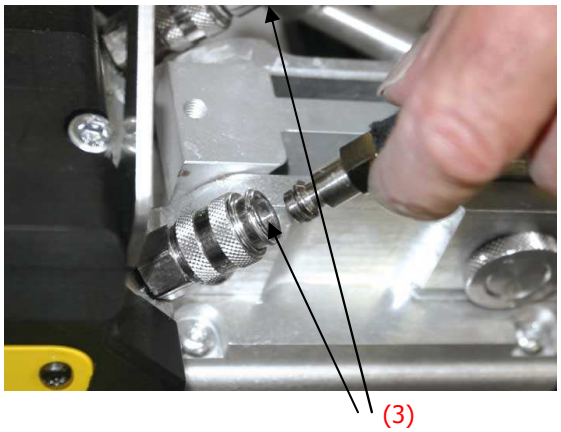
Caution: The caps must be perfectly aligned. To check the electrode line, see change of arms on pages 18 and 19.

Installation and use of the gun

The gun and the earth clamp are optional
Ref: 051010

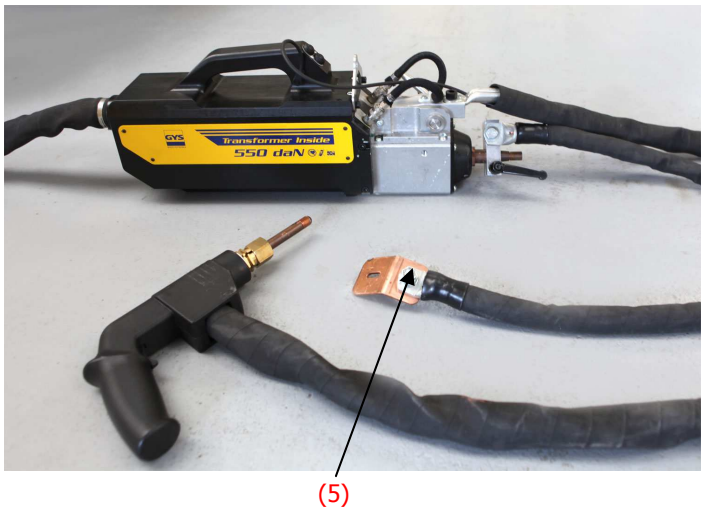


- Check if the cooling system pump is on the clamp, in order to deactivate it
- Fix the earth cable on the removable electrode; put the clamp and tighten the lever.
- Remove the arm from the top and put the gun cable instead of that one.



Connect the cooling liquid pipes to the 2 connectors.

Connect the command cable to the Jack plug.



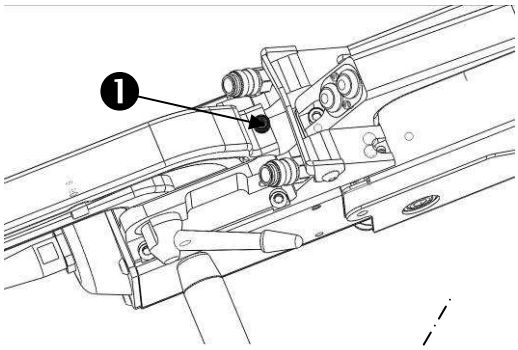
- Check if the screw connected from the earth plate to the earth clamp terminal is tightened correctly.

Replacement of C arms

Please read the following instructions carefully.
Incorrectly tightening or setting the C clamp arms can lead to the arm and clamp overheating and causing damage. Damage caused by incorrect assembly are not covered under the warranty

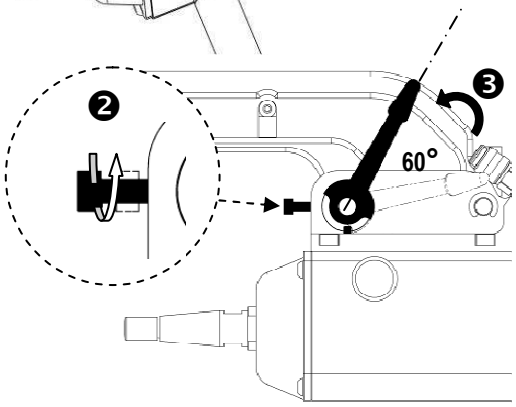
Ⓐ

- Switch off the machine, or put the machine into « clamp setting » mode.
- Unscrew screw (1) which holds the arm to the clamp. Leave it on the arm to not lose it



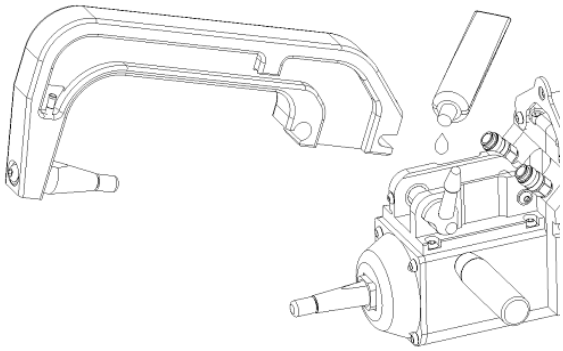
Ⓑ

- Disconnect the cooling liquid pipes.
- Unscrew screw (2) and loosen the lever (3) on the side of the clamp.



Ⓒ

- Remove the clamp arm.
- Lubricate both a new arm and the support with contact grease (**ref.050440).**

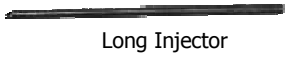


Specific Installation for C2 and C8 arms

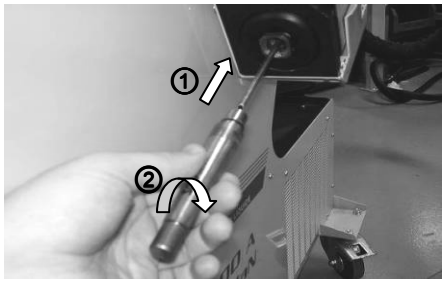
For these arms, the Stretches will also need to be changed. Unscrew the short stretches with a flat spanner and remove the injector. Centre the injector along the axle of the clamp (Caution: beveled side outside) and insert it manually(1)
Position the long stretches in front and screw it on to the clamp axle (maximum torque 15Nm) (2).

Long Stretches

Short Stretches


Long Injector

Short Injector

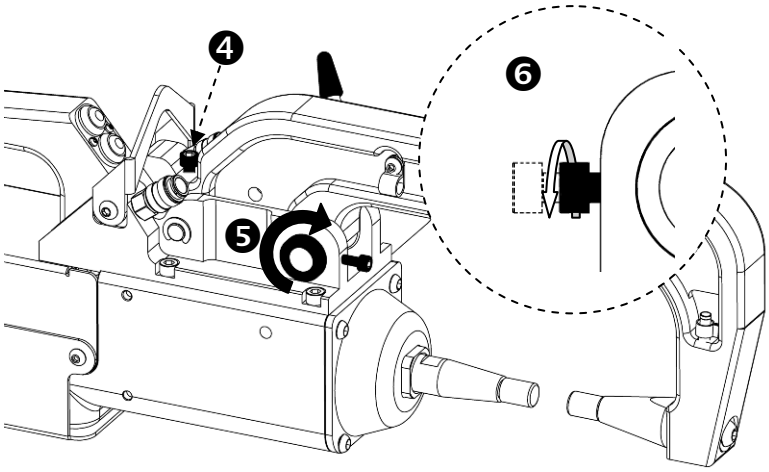


Stretches types:
Short: C1, C3, C4, C5, C6, C7, C9, C10
Long: C2, C8

Adjustment of C arms

Ⓓ

- Position screw (4) to fix the arm on the clamp. Tighten it in manually - do not overtighten.
- Tighten ring (5) manually, then the tighten (6) using the Allen key.



Ⓔ

- Tighten the lever manually and check it is not end up against the joint stop (see diagram below).

If it is the case go back to stepⒹ.

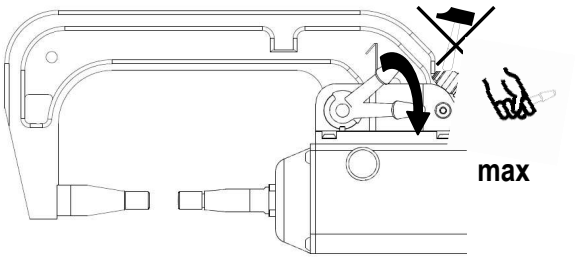


Bild 1

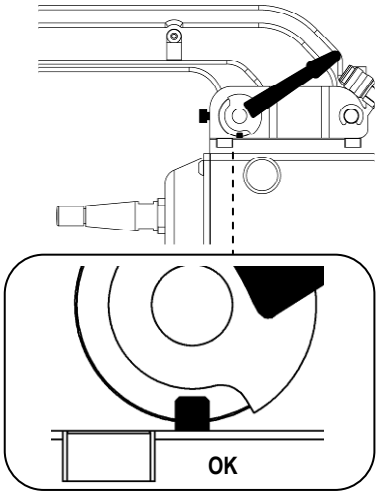
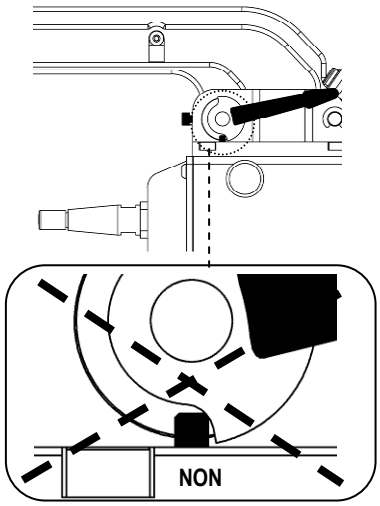


Bild 2



Warning: Clamp and arm may be damaged if the lever is not tightened properly.

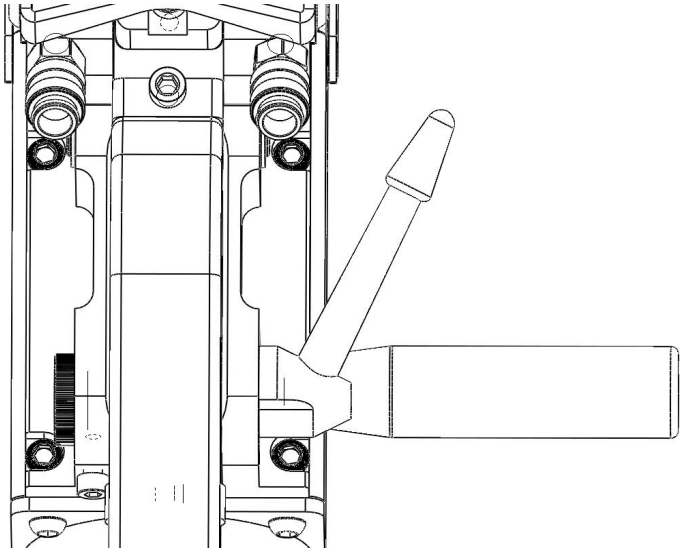
Ⓕ

- Check the cooling liquid level.
- Check screws and lever, incorrectly tightening can damage the material.
- Switch on the machine.

C clamp overhaul:

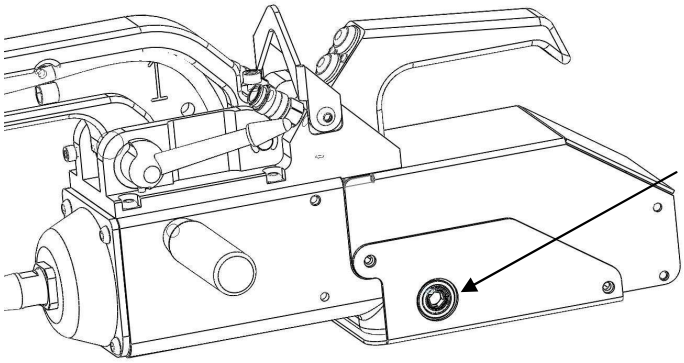
The tightening of the following screws need to be inspected every month:

Screw between the arm and the clamp:



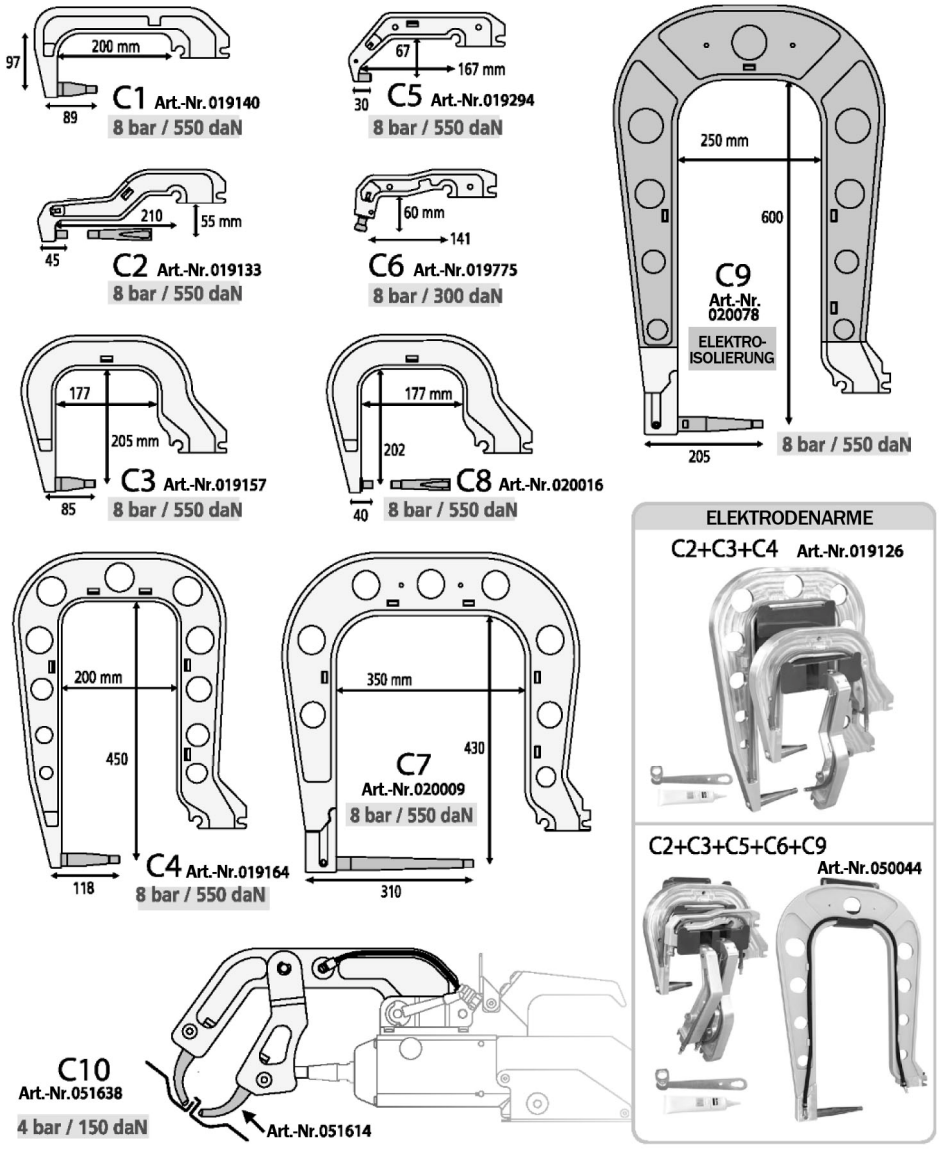
These 4 screws fix the arm to the clamp. They need to be tightened to have a good transmission of the current. A bad tightening leads to a loss of current, and worst can damage your arm or clamp irreversibly.

Screws between the copper cable terminals to the jack:



This screw fixes the copper cable terminals to the clamp. The tightening needs to be overhauled or you can have a loss of current or worst you can damage irreversibly your machine.

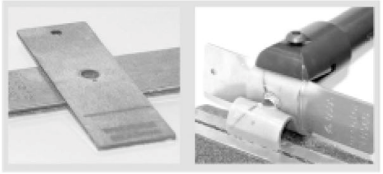
Arm types for the C clamp:



Spot control

Art.-Nr. 050433

Bleche
HLE / HTS 1,0 mm (x150) Art.-Nr. 050181
THLE / VHTS 2,5 mm (x150) Art.-Nr. 050167



Consumables

Elektrodenkappen-Schlüssel
Art.-Nr. 050846

(x6)
Typ A • Ø 13 mm
Art.-Nr. 049987

Schmierfett-Tube
Art.-Nr. 050440

(x6)
Ø 13 mm
Art.-Nr. 049994

(x6)
Typ F • Ø 13 mm
Art.-Nr. 049970

(x1)
(für RC2)
Art.-Nr.
051157

(x1)
(für C6)
Art.-Nr.
050617

Spotter Verschleißteile-Kit
Art.-Nr. 050068

6. SYMPTOMS / REASONS / SOLUTIONS

	SYMPTOMS	REASONS	SOLUTIONS
Clamp	The Spot weld doesn't hold / is not good	The caps used are worn out/faulty	Replace the caps.
		Insufficient grinding / preparation of the workpiece	Sand and clean the metal sheet again.
		The arm selected doesn't match the one installed	Check the arm with the software
	The spotter makes holes in the steel	The caps used are worn out/faulty	Replace the caps
		Not enough pressure	Check the compressed air network (min. 7 bar)
		Insufficient preparation of the work-piece	Sand and clean the metal sheet again
	Lack of power on the clamp	Power supply issue	Check the stability of voltage delivered
		Bad tightening of the C arm.	Check procedure for tightening C arm
		The caps used are worn out/faulty	Replace the caps.
	Unit overheats quickly / swelling of the power cable	The arm C badly cooled	Check the connection of the C Arm to the cooling section of the clamp
Welding Gun	Overheating of the gun The spot weld made doesn't hold	Gun sheath outside the gun.	The gun sheath should come inside the gun for the air cooling to cool inside the gun
		Bad tightening of the mandrel.	Check the tightening of the mandrel, the star holder, and the state of the sheath..
	The weld is not good	Bad contact of the earth clamp	Check the earth clamp is securely connected to the metal sheet
	Lack of power with the gun	Bad contact of the earth clamp	Check the ground connection

7. DECLARATION OF CONFORMITY

GYS confirm that the product described within this manual conforms to the following directives:
- Low Voltage Directive 2006/95/CE in respect of the harmonized norm EN 62135-1
- Electromagnetic Compatibility Directive EMC 2004/108/CE in respect of the harmonized norm EN62135-2
- Machine Directive 2006/42/EC in respect of the harmonized norm EN 60204-1
- Electromagnetic Field - exposure of workers Directive 2004/40/CE of the 29thof April 2004 in respect of the harmonized norm EN 50455 of 2008.

8. WARRANTY

1) The warranty is valid for one year only when the certificate of warranty has been filled correctly by the seller.
2) The warranty covers every default or manufacture vice for one year, as from the purchase date (spare parts and labourforce).
3) THE WARRANTY DOESN'T COVER THE VOLTAGE ERRORS, if you don't use CORAGARD CS 330 or an equivalent liquid, damage due to a bad use, dropped product, dismantling or any more issue due to the carriage.
4) The warranty doesn't cover any issue due to a maintenance of the clamp or the generator.
5) The warranty doesn't cover the normal wear and tear of the spare parts (e.g.: cables, clamps, etc.).
In case of breakdown, please return the unit to the GYS factory GYS with:
- the following certificate of warranty validate by the seller and
- an explicative note of the breakdown.
After the warranty, our After-sales service provides the repairs by acceptance of the quotation.

ATTENTION

Nous vous rappelons que nous n'acceptons pas le retour d'appareil en port dû.
SOCIETE GYS « S.A.V » : 134 Bd des Loges - BP 4159
53941 SAINT-BERTHEVIN cedex
FAX S.A.V : 02 43 01 23 75

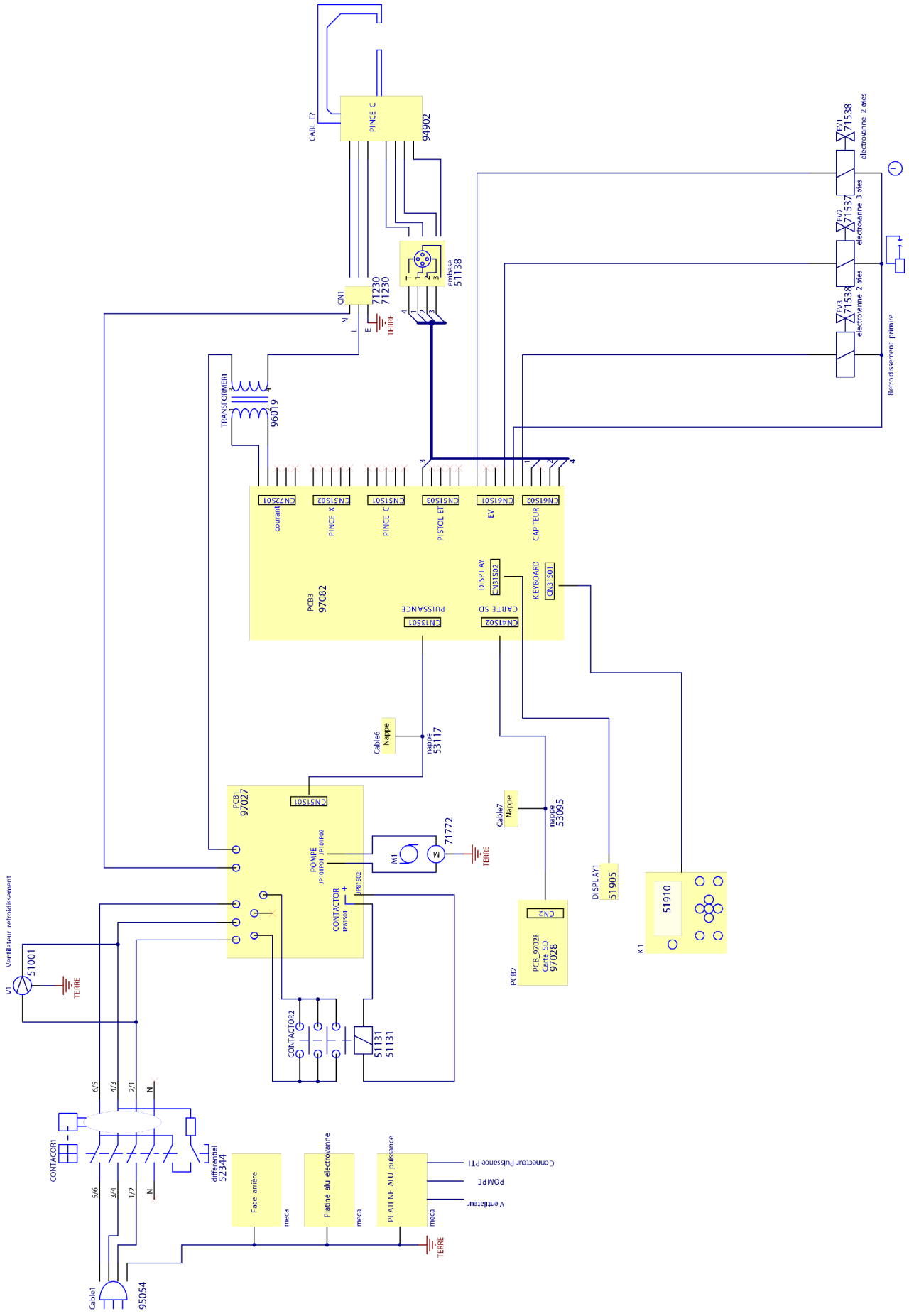
CERTIFICATE OF WARRANTY

Seller stamp:

Reference of the unit: .....
Purchase date: .....
Seller Name Company:.....

Valid for one year as from the purchase date

9 - CIRCUIT DIAGRAM



10 – Technical specifications

ELECTRICAL CHARACTERISTICS	
Nominal input voltage : U1N	400V 3ph. + Erde 50/60Hhz
Permanent input current : I1N	25 A
Power at 50 % duty cycle : S50	20 kVA
Permanent input power : Sp	14 kVA
Maximum welding input power : Smax	80 kVA
Secondary voltage : U2d	7 VDC
Maximum short-circuit output current : I2cc	14500 A
Maximum permanent output current : I2P	1 800 A
Maximum regulated welding current	13 000 A
Circuit breaker	25 A Kurve D
Earth Leakage Circuit Breaker	30 mA
Duty cycle	2%
THERMAL CHARACTERISTICS	
Ambient temperature range	+5°C +45°C
Transport and storage temperature range	-20°C +70°C
Hygrometry	80 %
Altitude	2000m
Thermal protection by thermistor on the diodes bridge	70 °C
MECHANICAL CHARACTERISTICS	
Protection rating	IP21
Width	610 mm
Depth	720 mm
Height	2260 mm
Weight	100 kg
Network cable lenght	8.000 mm
Clamp cable lenght reference : 019614	4.000 mm
Clamp cable lenght reference : 020320	6.000 mm
PNEUMATIC CHARACTERISTCS	
Maximum air pressure P1	8 bar
Liquid flow rate	2L/min
Minimum regulated force : F min	100 daN
Maximum regulated force with C clamp : F max	550 daN

11 - Icons

V	Volt
A	Amps
3 ~	Three-phase power supply
U 1n	Nominal input voltage
S p	Permanent input power
S max	Maximum welding input power
U 20	Alternating current defined unload
I 2 cc	Secondary current on short-circuit
IP 21	Protected against rain and moisture. No access to dangerous parts.
	Caution! Read the user manual before use
	Separate collection required – Do not throw in a domestic waste bin
	Do not use in the open air. Do not use the product in damp/wet environments. IP21.
	Risk of interference and disturbance of electronic medical devices (i.e. pace-makers) when near of the product.
	Caution! Strong magnetic field. People wearing active or passive implants must be informed.
	Always wear suitable protective clothing to shield eyes, hands, and skin, when welding.